FAST PROTECTION SWITCHING BY SNOOPING ON UPSTREAM SIGNALS IN AN OPTICAL NETWORK

ABSTRACT OF THE DISCLOSURE

An optical network has an optical splitter connected to (1) a working optical subscriber unit (OSU) of a working circuit via a working optical fiber, (2) a protection OSU of a protection circuit via a protection optical fiber, and (3) one or more optical network terminals (ONTs). The present invention enables fast protection switching from the working OSU to the protection OSU. In one embodiment, the arrival times of corresponding upstream ranging reply PLOAM cells are measured at both the working and protection OSUs during ranging operations of the working OSU. In another embodiment, a cell delineation procedure is initiated at the protection OSU during normal, non-ranging operations of the working OSU to enable the protection OSU to correctly delineate upstream cells and the arrival times of corresponding upstream cells are then measured at both the working and protection OSUs. In either case, a propagation delay value is generated based on the measured arrival times for use by the protection OSU for communications with the one or more ONTs if and when protection switching is implemented upon detection of a failure in the working circuit, possibly without requiring the protection OSU to perform any ranging for the one or more ONTs.